

WHAT IS CLAIMED IS:

1. A bonding layer for bonding resin that is formed on a copper surface, comprising an alloy of:

5 (a) copper;

(b) tin; and

(c) at least one type of metal (third metal) selected from the group consisting of: silver, zinc, aluminum, titanium, bismuth, chromium, iron, cobalt, nickel, palladium, gold, and platinum,

10 wherein the copper is contained in an amount of 1 to 50 atom %, the tin is contained in an amount of 20 to 98 atom %, and the third metal is contained in an amount of 1 to 50 atom %, and

the bonding layer has a thickness of not less than 0.001 μm and not more than 1 μm .

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2. The bonding layer according to claim 1, wherein the copper surface is smooth.

3. The bonding layer according to claim 1, wherein the copper surface is rough.

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4. The bonding layer according to claim 1, wherein the bonding layer contains the copper in an amount in a range of 5 to 45 atom %.

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5. The bonding layer according to claim 4, wherein the bonding layer contains the copper in an amount in a range of 10 to 40 atom %.

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6. The bonding layer according to claim 1, wherein the bonding layer contains the tin in an amount in a range of 30 to 90 atom %.

7. The bonding layer according to claim 6, wherein the bonding layer contains the tin in an amount in a range of 40 to 80 atom %.

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8. The bonding layer according to claim 1,
wherein the bonding layer contains the third metal in an amount in
a range of 2 to 45 atom %.
- 5 9. The bonding layer according to claim 8,
wherein the bonding layer contains the third metal in an amount in
a range of 3 to 40 atom %.
- 10 10. The bonding layer according to claim 1,
wherein the bonding layer has a thickness in a range of 0.001 to 0.5
μm.
- 15 11. The bonding layer according to claim 10,
wherein the bonding layer has a thickness in a range of 0.001 to 0.1
μm.